

A NEW SPECIES OF *LIPPIA* (VERBENACEAE) FROM SOUTH-CENTRAL MEXICO, WITH COMMENTS ON RELATED AND PERIPHERAL SPECIES

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ABSTRACT

A relatively widespread and well-collected species of *Lippia* in south-central México (Colima and southeastern Jalisco through Michoacán to Morelos, Edo. México, and Distrito Federal) is described here as *L. mexicana* Nesom, *sp. nov.* The new species has mistakenly been identified as *L. umbellata*, the latter in turn commonly identified by one of its synonyms, *L. pringlei*. The close and problematic similarity of *L. umbellata* and *L. torresii* is discussed.

KEY WORDS: *Lippia*, Verbenaceae, México

In his studies of Mexican Verbenaceae, Moldenke has consistently identified as *Lippia umbellata* Cav. a species with a strictly axillary inflorescence, the pedicellate heads arising in clusters of 1-4 from the upper leaf axils. Yet the illustration of *L. umbellata* by Cavanilles (see citation below) shows a plant with an inflorescence of heads in umbel-like clusters above the level of the well-developed leaves. Cavanilles's plant is unequivocally a representative of the species that Moldenke has consistently identified as *L. pringlei* Briquet; this synonymy was recognized much earlier by Standley (1924). Further, the name *L. callicarpifolia* Kunth, which has generally and consistently been applied to a distinctive species of southern México with colored bracts, must also be considered a synonym of *L. umbellata* (details below). In contrast, I have been unable to find a valid name that has been correctly applied to the plants identified by Moldenke as *L. umbellata*. This species occurs in south-central México and is formally named here for the first time.

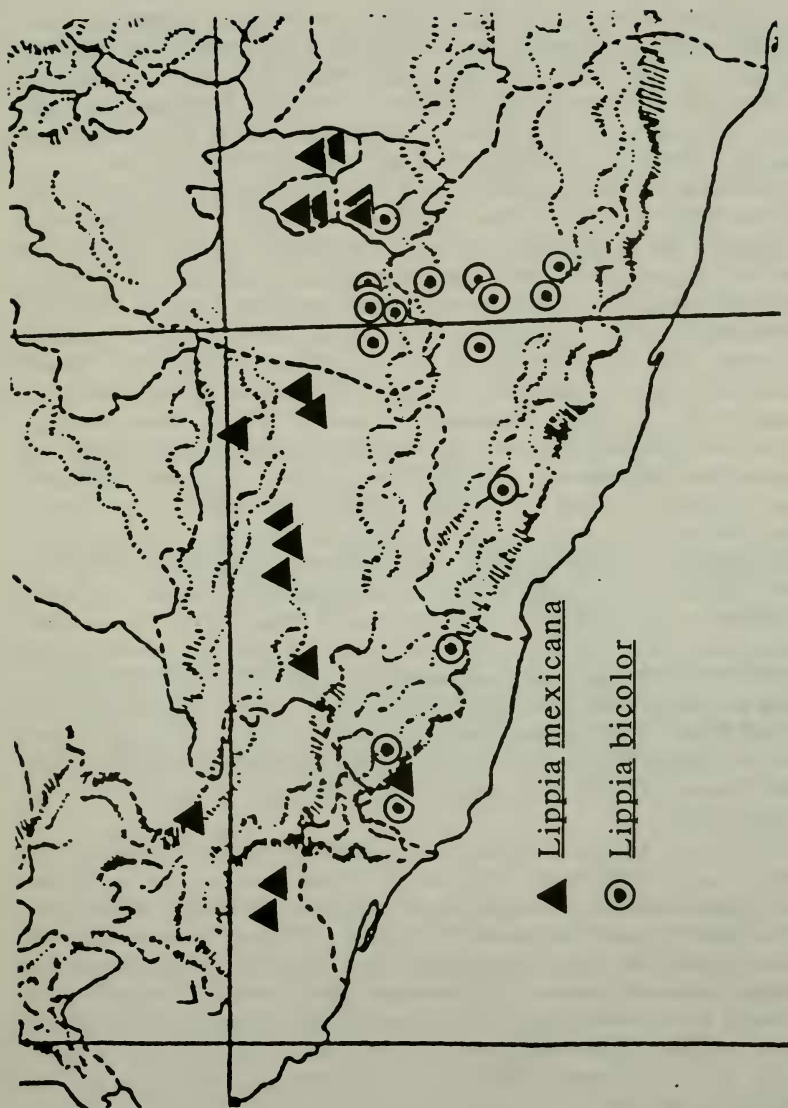
LIPPIA MEXICANA Nesom, *sp. nov.* TYPE: MEXICO. Edo. México, Mpio. Tlalmanalco, Cerro Tenayo, cerca Tlalmanalco, ladera toposa con vegetación de encinar muy perturbado, 2 Nov 1971, J. Rzedowski 28722 (HOLOTYPE: TEX!; Isotypes: ENCB,US!).

Lippia umbellatae Cav. similis sed differt capitulis axillaribus pedicellatisque et bracteis ac pedicellis vix glandularibus. Differt a *Lippia bicolor* Kunth & Bouchet bracteis floralibus flavovirentibus (vs. purpureis) angustioribus (8-11 mm latis vs. 12-17 mm) ad maturitatem, foliis ovatis (vs. elliptici-lanceolatis apicibus acutis (vs. acuminatis), et paginis superis foliorum hirsutis (vs. rigide strigillosis vel glabratibus).

Shrubs or small "rounded" trees 2-8(-12) m tall, the trunk up to 15-20 cm in diameter; young stems, peduncles, and petioles sparsely strigose and glandular, older stems glabrate; plants described as "pleasantly aromatic" and with a "menthol smell." Leaves opposite, clustered toward the ends of the branches, lanceolate to elliptic-lanceolate, often broadly so, noticeably bicolored (lighter beneath), margins serrulate with 4-7 teeth per cm or sometimes the proximal 1/3-1/4 of the margins entire, upper surface smooth to distinctly rugose, petioles 1-2 cm long, blades (5-)8-12(-15) cm long, 1.5-5.5 cm wide, apex acute to acuminate, base abruptly attenuate to the petiole; surfaces sparsely to moderately strigose above and beneath with a mixture of ascending and appressed hairs, minutely granular-glandular beneath. Inflorescence of capitate heads produced in the upper leaf axils, 1-4 heads in each axil (or 2-8 per node), each head on a peduncle (10-)15-25(-40) mm long; heads spherical to depressed spherical, 6-8 mm in diameter (in flower), expanding to 10-15 mm in diameter (in fruit); receptacles 6-15 mm long; floral bracts (in flower) greenish, ovate with an obtuse to acute or acuminate apex, 3-6 mm wide, 5-7 mm long, becoming (in fruit) papery-tan, widely to depressed ovate, expanding to 7-11(-14) mm wide, sparsely strigose adaxially, the abaxial surface glabrous to sparsely strigillose and sometimes sparsely granular-glandular. Calyces sparsely to densely strigose-sericeous and glandular, 2-3 mm long, tubular, slightly compressed, bidentate, each tooth often minutely bidentate. Corollas yellow to cream or yellow-green, salverform, glabrous or glabrate to sparsely strigose, the tube straight, 2.5-4.0 mm long; stamens included.

Colima, Jalisco, Michoacán, Morelos, México, and Distrito Federal (Map 1); oak, pine, or oak-pine, to pine-fir woods, 2000-2850 m, flowering all year.

Additional collections examined: MEXICO. Distrito Federal: Cañada de Contreras, Dec 1928, *Lyonnet 457* (MO,US); Cañada de Contreras, 24 Nov 1948, *Moldenke 19853* (BRIT,LL,TEX); S of Contreras, 17 Sep 1930, *Russell & Souviron 184* (US); Cañada de Contreras, 13 Feb 1966, *Rzedowski 21961* (BRIT,TEX); Deleg. Xochimilco, Sta. Cecilia, 8 Jan 1977, *Ventura 2501* (MO); Deleg. Contreras, Los Dineros, 13 Oct 1979, *Ventura 3570* (MO). Jalisco: 20 km SSE of El Chante, E end of the Sierra Manantlán Oriental plateau, lower NW shoulders of Cerro El Muñeco, 8 Jan 1980, *Iltis et al. 2445a* (LL); Mpio. Jocotepec, Cerro Viejo, NE of Zapotitlán de Hidalgo, 11 Feb 1990, *Machuca N. 6400* (MO,TEX); NW slopes of Nevado de Colima, above Jazmin, above



Map 1. Distribution of *Lippia mexicana* and *L. bicolor*.

settlement of El Isote, 27 Mar 1949, *McVaugh 10070* (LL,TEX,US); NE slopes of Nevado de Colima, below Canoa de Leoncito, steep mountainsides in pine-oak forest, 11 Oct 1952, *McVaugh 13425* (BRIT,US); Sierra de Manantlán (15-20 mi SE of Autlán) on the bajada S and W of the divide between Aseradero San Miguel Uno and Durazno, steep slopes in cloud forest of firs and broad-leaved trees, 6 Nov 1952, *McVaugh 13935* (BRIT,US); divide above headwaters of Río Mascota (25-30 air km SE of Talpa de Allende), 11-12 road km S of El Rincón, 29 Nov 1960, *McVaugh 21511* (US). Edo. México: valle de México, Oct 1865, *Bourgeau 968* (US-2 sheets); foothills, Ixtaccihuatl, 5 Jan 1899, *Deam s.n.* (US); Amecameca, 8 Feb 1907, *Goodding 2178* (MO); Mpio. Amecameca, 1 km NE of Santo Tomas Atzingo, 18 Nov 1979, *Gutierrez G. 92* (MO,US); Mpio. Zinapécuaro, La Cañada, 500 m E de El Rincón, 6 Dec 1988, *Jasso 639* (MO-2 sheets); hills near Ozumba, 3 Nov 1902, *Pringle 11089* (US); Mpio. Amecameca, 1 km E of San Antonio, 31 Oct 1968, *Rzedowski 26456* (LL); Mpio. Tlalmanalco, cerros NE of Santo Tomas Atzingo, 20 Dec 1970, *Rzedowski 28020* (LL). Michoacán: Mpio. Cuanajo, Cerro del Burro, 2 Dec 1985, *Escobedo 746* (TEX); Dist. Zitácuaro, Zitácuaro-Macho de Agua, 6 Mar 1938, *Hinton 11910* (LL,TEX,US); Dist. Coalcomán, S. Torricillas, 19 Dec 1938, *Hinton 12791* (LL,US); Dist. Zitácuaro, Las Canoas, 6 Jan 1939, *Hinton 13550* (LL,TEX); Dist. Uruapan, Tancitaro, 18 Nov 1940, *Hinton 15706* (LL,MO,US); ca. 18 mi S of Patzcuaro, 20-25 Nov 1961, *King & Soderstrom 5161* (BRIT,TEX,US); N slope of Patambau, 28-31 Jan 1903, *Nelson 6564* (US); mountains near Patzcuaro, 23 Nov 1891, *Pringle 3948* (LL,MO,US). Morelos: near Cuernavaca, 22 Nov 1958, *Jones 23258* (LL); Sierra de Ocuila rumbo Mexicapa, 16-18 Dec 1938, *Lyonnet 2838* (US); Sierra de Tres Marias (Tres Cumbres), Jan 1941, *Lyonnet 3157* (US); mountainsides near Cuernavaca, 3 Feb 1899, *Pringle 7714* (US); Sierra de Tepoxtlán, 31 Oct 1900, *Pringle 9129* (MO); mountains above Cuernavaca, 19 Nov 1902, *Pringle 11090* (MO,US).

Plants from the Zitácuaro area of Michoacán (*Hinton 11910*, *Hinton 13550*, *Calvert s.n.*) are different from the others of *Lippia mexicana* in several features: longer peduncles (commonly 4 cm long), more densely glandular stems and peduncles, and floral bracts with glutinous, long-acuminate, recurving apices. In particular, the recurving floral bracts (in heads at anthesis) and the strongly broadened mature bracts give these plants a distinctive appearance. Although the Zitácuaro plants are interpreted here as local variants within *Lippia mexicana*, they may ultimately deserve formal taxonomic recognition. In any case, their closest similarity and probable relationship appears to be with *L. mexicana*.

In a supplemental list of collections of "*Lippia umbellata*" (mostly *L. mexicana* in the present interpretation), Moldenke (1985) listed several collections from Guatemala and El Salvador. I have not determined the identity of these, but they clearly are some other species than *L. mexicana*.

The treatment of plants in the Valley of México as *Lippia umbellata* (Arroyo Frias 1985) apparently was based on a set of specimens so identified by Moldenke, since it appears from Arroyo's description that they are *L. mexicana*. The occurrence of typical *L. umbellata*, as recognized here, has not been recorded from the Valley of México.

Pringle's collection 7714 from Morelos is tentatively identified here as *Lippia mexicana*, but it has particularly large and slightly purplish mature bracts atypical of the species. *Lippia bicolor* Kunth & Bouche, which is sympatric with *L. mexicana* in the same area of northwestern Morelos (Map 1), is characterized by its axillary heads and relatively large, reddish or purple floral bracts and may have been involved in the parentage of the plant collected by Pringle. The differences between *L. mexicana* and *L. bicolor* are summarized in the following couplet.

1. Mature floral bracts 8-11 mm wide at the base, greenish-yellow; leaves elliptic-lanceolate to lanceolate, the apex acuminate, the base acute, upper surfaces relatively flat, stiffly strigillose to glabrate. ... *L. mexicana*
1. Mature floral bracts 12-17 mm wide at the base, rose-purple; leaves ovate, the apex acute, the base obtuse, upper surfaces deeply rugose, hirsute.
..... *L. bicolor*

Lippia bicolor (Ind. Sem. Hort. Berol. 10. 1845) has formerly been known as *L. callicarpifolia*, but the latter is treated here as a synonym of *L. umbellata* (see below). The name *L. bicolor* has long been associated with the purple-bracted species (e.g., Loesener 1911; Standley 1924; Moldenke 1965).

The identity of *Lippia umbellata*

Lippia umbellata is an easily recognized species among its Mexican congeners but aspects of problematic variation remain to be investigated (as noted below). A tentative summary of its nomenclature is presented here in order to establish its separation from *L. mexicana*. Problems of variability within *L. umbellata* do not affect the delineation of *L. mexicana*.

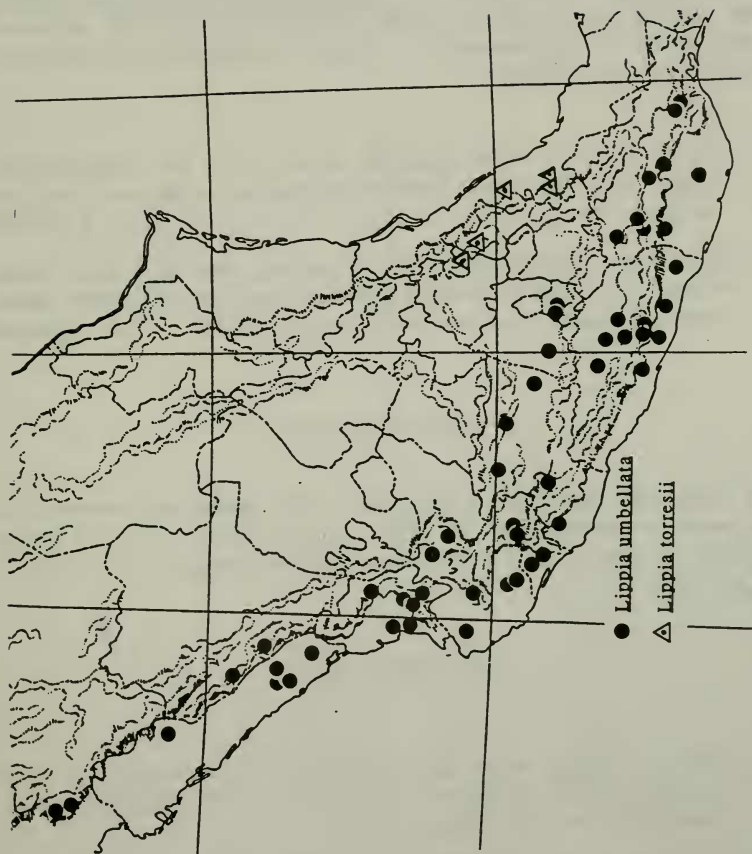
LIPPIA UMBELLATA Cav., *Içon. Pl.* 2:75, tab. 194. 1793. TYPE: MEXICO. [Protologue]: "Habitat in Imperio Mexicano, unde biennio iam introducta in regium hortum Matritensem floruit et fructificavit ultimo Decembri." The description and illustration by Cavanilles are unequivocally diagnostic.

- Lippia pringlei* Briq., Bull. Herb. Boiss. 4:340. 1896. TYPE: MEXICO. Jalisco: barranca near Guadalajara, 2 Nov 1888, *C.G. Pringle 1733* (HOLOTYPE: G; Isotypes: F,GH,US!).
- Lippia pringlei* Briq. forma *intecta* Mold., Phytologia 9:99. 1963. TYPE: MEXICO. Nayarit: El Llano, S of San Blas, 7 Jan 1944, *Hernández X. 125* (HOLOTYPE: LL!).
- Lippia callicarpifolia* Kunth, Nov. Gen. Sp. 2:268. 1817. TYPE: MEXICO. Crescit prope urbem Mexici, May, *Humboldt & Bonpland s.n.* (HOLOTYPE: P, photo-LL!, photo-MO!). The plant represented by the type clearly produced heads in umbellate clusters above the level of the upper leaves. This name has previously been associated with the species identified here as *L. bicolor*.
- Lippia callicarpifolia* Kunth var. *briquetiana* Loes., Repert. Spec. Nov. Regni Veg. 9:366. 1911. LECTOTYPE (designated here): MEXICO: Oaxaca: Ejutla, 4 Nov 1904, *Seler 4358* (US!; Isolectotype: B). Loesener also cited *Endlich 1067* (B) and *Seler 1460* (B, photo-MO!).
- Lippia jurgensenii* Briq., Annuaire Conserv. Jard. Bot. Genève 4:239. 1900. TYPE: MEXICO. Oaxaca: Río de Talea, ENE of Oaxaca, Jul 1845, *C. Jurgensen 431* (HOLOTYPE: G, fragment-F, photo-MO!, photo-US!).
- Lippia jaliscana* Mold., Phytologia 1:427. 1940. TYPE: MEXICO. Jalisco: trail from Real Alto to San Sebastián, 2000 m, 3 Feb 1927, *Y. Mezia 1636* (HOLOTYPE: NY; Isotypes: MO!,TEX!,US!).
- Lippia tepicana* Mold., Phytologia 1:454. 1940. TYPE: MEXICO. Nayarit: 5 Jan-6 Feb 1892, *E. Palmer 1969* (HOLOTYPE: NY; Isotype: US!; Probable isotype: LL!).

Sonora, Sinaloa, Durango, Nayarit, Jalisco, Colima, Edo. México, Michoacán, Guerrero, Morelos, Puebla, and Oaxaca (Map 2); shrublands, oak-tropical deciduous transition, oak to pine-oak woods, 350-2400 m, flowering October-April.

Gibson & Nee (1984) included *Lippia umbellata* (in the sense of Cavanilles) as a member of the Veracruz flora and correctly distinguished the plants concerned from *L. myriocephala* Briq., with which it has sometimes been confused. In such plants (from Veracruz and adjacent Puebla and Hidalgo; Map 2), however, a problem arises in the distinction of *L. umbellata* from the very closely similar *L. torresii* Standley (Field Mus. Pub. Bot. 18:1010. 1938.) of Costa Rica and Panamá. Moldenke (1981, 1985) identified the Veracruz collections as *L. torresii*.

The leaves of *Lippia torresii* average larger and are consistently more densely and softly pubescent than in *L. umbellata*. The Mexican plants of



Map 2. Distribution of *Lippia torresii* (in México) and *L. umbellata*.

L. torresii are more like the Central American plants than other nearby Mexican ones. Leaves of *L. umbellata* from Oaxaca become larger and more densely pubescent, closely approaching *L. torresii*, and the justification for maintaining the latter at specific rank apart from *L. umbellata* is tenuous. This complex needs detailed study, but the two taxa in their typical forms can be distinguished by the following contrasts (*L. torresii* tentatively including those populations from eastern México).

1. Largest upper leaf blades (8-)12-20 cm long, with the abaxial surface densely and softly villous; heads borne below or at the same height as the upper leaves. *L. torresii*
1. Largest upper leaf blades (6-)8-14(-20) cm long, with the abaxial surface sparsely to densely hirsutulous, sometimes only along the veins; heads usually distinctly above the level of the upper leaves. *L. umbellata*

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LITERATURE CITED

- Arroyo Frias, H. 1985. *Lippia*, pp. 282-283 in *Flora Fanerogamica del Valle de México*. Vol. II. Rzedowski, J. & G.C. Rzedowski (eds.). Instituto de Ecología, México, D.F., México
- Gibson, D.L. & M. Nee. 1984. Verbenaceae. *Flora de Veracruz* 41:1-154.
- Loesener, T. 1911. Mexikanische und zentralamerikanische Novitaten. III. Feddes Repert. Spec. Nov. Regni Veg. 9:355-367.
- Moldenke, H.N. 1965. Materials toward a monograph of the genus *Lippia*. II. *Phytologia* 12:73-120.
- . 1981. Additional notes on the genus *Lippia*. XVII. *Phytologia* 48:255-270.

_____. 1985. Additional notes on the genus *Lippia*. XXI. *Phytologia* 57:18-27.

Standley, P.S. 1924. Verbenaceae, in *Trees and Shrubs of Mexico*. Contr. U.S. Natl. Herb. 23(4):1234-1254.